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TITLE:

Method, System and Medium for Plug-and-Play Downloading of Speed Dial Lists

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METHOD, SYSTEM AND MEDIUM FOR PLUG-AND-PLAY DOWNLOADING OF SPEED DIAL LISTS

Technical Field

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The present invention relates to telephone speed dial lists and features.

Background of the Invention

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When a customer buys a new telephone set having data storage capabilities, it is left as a manual exercise for the customer to load information into the telephone set. For example, after a customer buys a
15 telephone set having a speed dialing capability, the customer is left to manually load a speed dial list into the telephone set.

Other speed dialing lists are maintained within a telephone network. Regardless of whether the speed
20 dialing list is maintained within the telephone set or the telephone network, management of speed dialing lists is left as a manual responsibility of the end users.

U.S. Patent Nos. 5,883,944 and 5,887,054 disclose
25 plug-and-play telephone sets which communicate to each other using a peer-to-peer protocol over a control channel. A resulting telephone system is self-configurable, meaning that each telephone set and/or adjunct bids for use of a system resource. These
30 patents explicitly disclose that there is no

centralized processing or control point to provide the
plug-and-play functionality.

Brief Description of the Drawings

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The invention is pointed out with particularity in
the appended claims. However, other features of the
invention will become more apparent and the invention
will be best understood by referring to the following
10 detailed description in conjunction with the
accompanying drawings in which:

FIG. 1 is a flow chart of an embodiment of a
method of plug-and-play downloading of a speed dial
list; and

15 FIG. 2 is a schematic/block diagram of an
embodiment of a system for plug-and-play downloading of
a speed dial list.

Detailed Description of a Preferred Embodiment

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Embodiments of the present invention provide a
telephone network plug-and-play service which uses a
centralized processor and database. Briefly, the
telephone network plug-and-play service detects a new
25 network-capable device, such as a telephone set, about
as soon as it is plugged in to a telephone line. An
end user is prompted to determine if existing
customization information, such as a speed dialing
list, is to be downloaded into the new device. If the
30 user answers in the affirmative, the customization
information is downloaded to the new device. Further,

the presence of the new device may be recorded for subsequent device management activities.

The network plug-and-play service eliminates the need for users to manually load new telephone sets with

5   existing customization parameters. This increases the immediate utility of each new device, and promotes a richer set of features to be provided by the device.

Further, multiple devices including cellular and wireless devices can be updated to load the

10   customization parameters, such as a speed dial list. This mitigates the need for users to manually update and coordinate each speed dial list across each of their telephone sets, each of their telephone lines, and optionally with a network-service-provider-based

15   speed calling feature. Beneficially, the same speed dial list is uniformly provided regardless of which telephone set is used, and regardless of whether a CPE-based or a network-based speed calling feature is used.

Embodiments of the present invention are described

20   with reference to FIG. 1, which is a flow chart of an embodiment of a method of plug-and-play downloading of a speed dial list, and FIG. 2, which is a schematic/block diagram of an embodiment of a system for plug-and-play downloading of a speed dial list.

25   Although preferred embodiments are described with reference to speed dial lists, it is noted that the present disclosure contemplates other customization parameters which may be used either in addition to or in place of the speed dial lists. Further, although

30   preferred embodiments are described with reference to telephone sets, it is noted that the present disclosure

contemplates alternative types of customer premises
equipment (CPE). Still further, although FIGS. 1 and 2
illustrate use by a single end user, the present
disclosure contemplates use by a plurality of users
5   each having his/her own unique speed dial list stored
in a centralized database.

As indicated by block 10, the method comprises
creating and uploading a speed dial list. The speed
dial list may include an individual list of telephone
10   numbers for business and/or personal use. The speed
dial list may further include: telephone numbers used
for accessing an Internet service provider (ISP) both
locally and nationally, telephone numbers for accessing
an intranet such as a user's business intranet via
15   remote access services, telephone numbers for accessing
information (e.g. stock quotes) via a personal digital
assistant, and telephone numbers for community agencies
such as police and fire departments, for example.

The speed dial list is created and uploaded by
20   either a telephone set 12 or a computer 14. The
telephone set 12 has a speed dial feature which
facilitates creation and use of a speed dial list. The
telephone set 12 may comprise a modem to upload the
speed dial list in a machine-readable form via a
25   telephone network 20. The telephone network 20 may
comprise a public switched telephone network (PSTN),
for example.

The computer 14 provides a user-friendly
environment, such as a displayable form, for creating
30   the speed dial list. Using the form, an end user may
add, edit or delete entries in the speed dial list

using one or more input devices such as a keyboard and a pointing device. The computer 14 includes a transceiver 22, such as a modem or a computer network interface, to upload the speed dial list in a machine-
5   readable form via at least one of the telephone network 20 and a computer network 24. The computer network 24 may comprise the Internet or an intranet, for example.

As indicated by block 30, the method comprises receiving a speed dial list associated with a telephone
10   line via at least one of the computer network 24 and the telephone network 20. A telephone network interface 32 is to receive the machine-readable form of the speed dial list via the telephone network 20. A computer network interface 34 is to receive the
15   machine-readable form of the speed dial list via the computer network 24. For purposes of illustration and example, consider the speed dial list being associated with a telephone line 36. Also, consider that the telephone line 36 comprises a plain-old telephone
20   service (POTS) line.

The telephone network interface 32 and the computer network interface 34 are coupled to a computer processor 38. The computer processor 38 either directs or assists in directing acts performed to provide plug-
25   and-play downloading of speed dial lists. The computer processor 38 is directed by computer-readable instructions encoded on a computer-readable medium 40. The contents of the computer-readable medium 40 cause the computer processor 38 perform the herein-disclosed
30   acts.

Examples of the computer-readable medium 40

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include, but are not limited to, a computer-readable storage medium and a computer-readable communication medium. Examples of a computer-readable storage medium

5 include, but are not limited to, an optical storage medium, an electronic storage medium, and a magnetic storage medium. The computer-readable storage medium may include stored data which encode computer program code and/or other computer-readable instructions.

10 Examples of a computer-readable communication medium include, but are not limited to, an optical communication medium, an electronic communication medium, and an electromagnetic communication medium. The contents of the computer-readable communication medium may include one or more waveforms which encode

15 computer data such as computer program code and/or other computer-readable instructions.

Based on the herein-disclosed high-level description, one or more computer programs to direct the computer processor 38 to perform the method is

20 within the skill of a routineer in the art of telecommunications.

As indicated by blocks 42 and 44, the method comprises storing the speed dial list in a database 46 and associating the speed dial list with an identifier

25 of the telephone line 36 in the database 46. The database 46 is responsive to the computer processor 38 to perform these acts. Optionally, the uploaded speed dial list is accessible by a network-service-provider to provide a network-based speed calling feature either

30 for the telephone line 36 or for another telephone line associated with the end user.

As indicated by block 50, the method comprises
detecting that a telephone set 52 has been connected to
the telephone line 36. The act of detecting may
comprise receiving a telephone call automatically

5 placed by the telephone set 52 via the telephone line
36 in response to the telephone set 52 being connected
to the telephone line 36. In this case, the telephone
set 52 may comprise a detector 54 which detects the
telephone line 36 being connected to a line interface

10 56. The line interface 56 may comprise a registered
jack (RJ), such as an RJ11 jack, to receive a
corresponding plug 60 connected to the telephone line
36. The detector 54 may detect either an onset of the
plug 60 being present in the jack, or an onset of a

15 signal provided from the telephone line 36 via the plug
60 to the jack.

The telephone set 52 comprises a processor 62
responsive to the detector 54. The processor 62 may
comprise a microprocessor, a microcontroller, or an

20 application-specific integrated circuit, for example.
The processor 62 directs a telephone circuit having a
modem 64 to dial an internally-stored telephone number
of a telephone network node 66 in response to detecting
an onset of the telephone line 36 being connected to

25 the line interface 56. The telephone network node 66
receives and answers the telephone call placed by the
telephone circuit/modem 64. Optionally, an alert
signal may be generated by the telephone set 52 to
alert the end user to pick up a handset or to be

30 otherwise prepared to interact with the telephone
network node 66.

As indicated by block 70, the method comprises
identifying the telephone line 36 to which the
telephone set 52 has been connected. The telephone
line 36 may be identified based on at least one of a
calling party number and an automatic number
identification associated with the telephone call.

Optionally, as indicated by block 72, the method
comprises providing, within the telephone call, an
option to download a speed dial list. The option may
be provided by the telephone network node 66 in the
form of an audible voice-synthesized or recorded,
spoken message played to the end user using an audio
output device 74. The audio output device 74 comprises
a speaker or a like transducer to generate audible
acoustic pressure waves based upon electrical signals
applied thereto. A signal which carries the audible
message is received from the telephone line 36,
processed by the telephone circuit 64, and applied to
the audio output device 74.

Optionally, as indicated by block 76, the method
comprises receiving a response within the telephone
call. The response may comprise either a dialed
response entered using a dialing interface 80 or a
spoken response entered using an audio input device 82.
The response may indicate either a selection of the
option or a rejection of the option.

The dialing interface 80 may include a telephone
keypad having dialing digit keys of "0" to "9", a "*"
key and a "#" key. The telephone keypad directs the
generation of dual-tone multi-frequency (DTMF) signals.
Signals generated in response to the telephone keypad

are applied to the telephone line 36 by the telephone circuit 64.

The audio input device 82 comprises a microphone or a like transducer to generate electrical signals based upon audible acoustic pressure waves sensed thereby. Signals generated by the audio input device 82 are applied to the telephone line 36 by the telephone circuit 64.

If the response indicates a selection of the option, an act of retrieving a speed dial list from the database 46 is performed, as indicated by block 84. The speed dial list associated with the telephone line 36 may be retrieved from the database 46 based on the identified telephone line described with reference to block 70. Alternatively, another speed dial list may be retrieved from the database 46 if the end user enters an appropriate identifier and password using the dialing interface 80 and/or the audio input device 82. The identifier may comprise a telephone number which identifies the other speed dial list. In this way, the end user may download a speed dial list associated with one of his/her telephone numbers to a telephone set associated with another of his/her telephone numbers.

As indicated by block 86, the method comprises communicating a machine-readable form of the speed dial list to the telephone set 52 via the telephone network 20. Preferably, the machine-readable form of the speed dial list is communicated within the telephone call.

As indicated by block 90, the method comprises receiving the machine-readable form of the speed dial list by the telephone set 52. The modem 64 receives

and demodulates the machine-readable form of the speed
dial list. As indicated by block 92, the method
comprises storing the speed dial list in the telephone
set 52 based on the machine-readable form. The

5   processor 62 directs the speed dial list to be stored
in a memory 94. Thereafter, the telephone call is
terminated, and users may access the speed dial list in
the telephone set 52. Users may access the speed dial
list using one or more speed dial keys 96 and/or the

10   dialing interface 80.

To illustrate how multiple devices may be updated,
consider an end user modifying and uploading a speed
dial list using the computer 14. The speed dial list
may be downloaded to the telephone set 52 by briefly

15   removing and replacing the plug 60 to the line
interface 56. Similarly, if the telephone set 12 has
the same features as the telephone set 52, the speed
dial list may be downloaded to the telephone set 12 by
briefly removing and replacing a plug (not specifically

20   illustrated) to a line interface (not specifically
illustrated) of the telephone set 12.

Thus, there has been described herein several
embodiments including preferred embodiments of a
method, system and medium for plug-and-play downloading

25   of speed dial lists.

It will be apparent to those skilled in the art
that the disclosed invention may be modified in
numerous ways and may assume many embodiments other
than the preferred form specifically set out and

30   described above.

Accordingly, it is intended by the appended claims to cover all modifications of the invention which fall within the true spirit and scope of the invention.

What is claimed is:

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